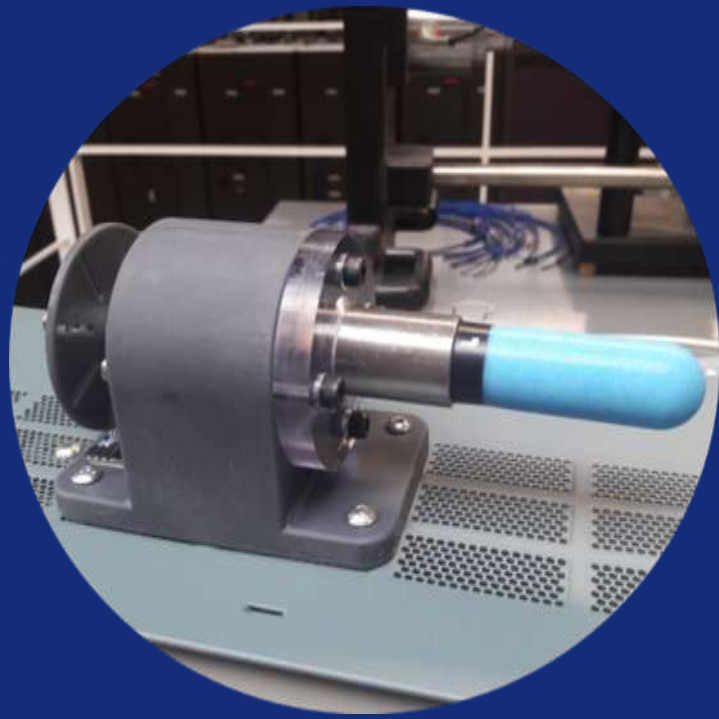
DEVELOPMENT OF A DIGITAL MANUFACTURING DEMONSTRATOR FOR INDUSTRY 4.0 TRAINING

EIT Manufacturing

EIT Manufacturing is supported by the EIT, a body of the European Union

OVERVIEW

Industry 4.0 incorporates a range of different technologies many of which are often integrated with each other, in order to yield enhanced manufacturing efficiencies. This project firstly involved the development of an Industry 4.0 demonstrator, which enables the demonstration / training of several digital technologies. Specifically the 'PERFORM' turbine demonstrator facilitates both technical and practical training in additive manufacturing, internet of things (IoT), augmented reality (AR) and digital twin, into a single device.



PARTNERS

The developed PERFORM turbine demonstrator and training leverages the deep technical expertise from the following project partners –

TRAINING FACILITATED WITHIN A SINGLE DEMONSTRATOR

- Metal and polymer additive manufacturing
- Remote system control (wireless)
- Sensors – RPM, blower speed, acoustic, temperature humidity
- Internet of things (IoT)
- Augmented Reality
- Digital Twin

UNDERGRADUATE AND INDUSTRY TRAINING

The PERFORM digital manufacturing demonstrator is the first internationally to combine Industry 4.0 training in four technologies (additive manufacturing, IoT, AR and digital twin), using a single demonstrator. The equipment has been successfully developed and trialed in Ireland, Finland and Greece. 110 undergraduate engineering students have already been trained and based on the survey which each student completed, there has been very positive feedback on the training programme.

It was planned to deliver face-to-face training to obtain industry feedback, which could not go ahead due to Covid-19. A 'blended' training programme is however now being delivered on-line, to 28 industry trainees from Spain and Ireland. As part of this programme the trainees download PERFORM software including IoT and AR onto their mobile phones, they also interact in groups over Zoom to develop the printed part designs. Two journal papers are planned based on the Industry 4.0 training as well as the development of a digital twin.

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